

Trace Oxygen Transmitter



Product shown with optional flow meter, solenoid valves, pump and particulate filter

| FEATURES | BENEFITS |
|----------------------------------|---|
| Long Life Trace Oxygen Sensor | Provides up to three times the functional life of most “fuel cell” type sensors. Reliability is dramatically increased while maintenance costs are reduced. |
| Sealed Sensor | Eliminates handling potassium hydroxide (caustic), a hazardous material or having to frequently “recharge” the electrolyte. |
| CO ₂ Resistant Sensor | Optional CO ₂ resistant sensor is designed to operate with sample gases containing up to 100% CO ₂ . Conventional “fuel cell” type sensors using potassium hydroxide (KOH) electrolyte can be poisoned from CO ₂ . |
| Economically priced | Affords savings of up to 30% and more over other manufacturers trace oxygen transmitters. |
| Wide Measurement Ranges | Measure from under 1 PPM to as high as 20,000 PPM oxygen. |
| Factory Calibration | Factory calibration included at no additional charge. Upon request, NIST calibration certificates available. |
| NEMA 4 Enclosure | Greater installation flexibility with a dust and waterproof enclosure. |

Product Description

The Series 3500 Trace Oxygen Transmitter is a true loop powered (14-32 VDC) trace oxygen transmitter designed to provide accurate and dependable trace oxygen measurements in a variety of background gases. Measurement ranges available are from 0-10 PPM to 0-20,000 PPM. The Series 3500 enclosure is made from durable polycarbonate, and is rated for NEMA 4 (IP 66) service (may change with the addition of certain optional equipment). A 4-20 mADC output is provided that can be used with a data logger, recorder, PLC, DCS, etc. Options include pressure regulators, flow meters, sample filters, and explosion proof (NEMA 7) housings

The Series 3510 Trace Oxygen Transmitter is the AC powered (115/230 VAC, 50-60 Hz) counterpart to the Series 3500 and is recommended when AC power is available or preferred. In addition to the optional equipment mentioned above, the Series 3510 can be equipped with sample pumps, sensor heaters, solenoid valves, loss of sample flow signal indication. A 4-20 mADC analog output is provided.

High Performance Trace Oxygen Sensor

The Series 3500 and Series 3510 Trace Oxygen Transmitters feature Alpha Omega Instrument's long-life ambient temperature electrochemical sensor that has a functional life of up to three times that of most "fuel cell" type sensors.

The enhanced mechanical design of the sensor ensures longer life, and virtually eliminates leakage of caustic electrolyte, a nagging (and expensive) problem associated with sensors that require periodic electrolyte maintenance. And, because the sensor is sealed, it is not position sensitive. In addition, unlike some electrochemical sensors, Alpha Omega Instruments readings from the Series 3500 and Series 3510 do not require manual adjustment based on changes in the molecular weights of the sample gas i.e. helium, hydrogen, etc. a major advantage for continuous measuring applications. The output from the sensor is both linear and temperature compensated to provide optimum performance.

Now Featured a CO₂ Resistant Sensor

A nemesis for many conventional "fuel cell" type trace oxygen sensors are their inability to measure oxygen in gases containing carbon dioxide. Carbon dioxide reacts with potassium hydroxide electrolyte to form carbonic acid and in short time destroys the sensor. Not anymore. Alpha Omega Instruments offers an optional CO₂ tolerant trace oxygen sensor with proprietary electrolyte. The CO₂ tolerant sensor is capable of providing accurate oxygen readings in gases containing up to 100% CO₂ without shortening the life of the sensor.

Specifications

PERFORMANCE

Measurement Ranges (parts per million)

0-10, 0-50, 0-100, 0-500, 0-1,000, 0-5,000, 0-10,000, and 0-20,000

Accuracy¹ : + 1% of full scale.

Linearity: + 1% of full scale.

Response Time: 90% of full scale response in less than 10 seconds (typical). The response time for ranges of 0-50 PPM or less depend to a great extent on the design of the sample delivery system including the materials used.

Sensor Type: Long-life Ambient Temperature Electrochemical Sensor (Optional CO₂ Resistant Sensor Available).

Temperature Compensation: Standard.

Operating Temperature Range: 40° to 104° F (5° to 40° C)
<40° F (<5° C) use heated sensor enclosure
>104° F (>40° C) cooling of sample gas/sensor required

Warranty: Two years electronics one year sensor.

ELECTRICAL

Series 3500 Loop Powered Trace Oxygen Transmitter: Input power 14-32 VDC

Series 3510 Trace Oxygen Transmitter: Input power 115/230 VAC, 50-60 Hz, or 24 VDC

Analog Output: 4-20 mADC with a loop resistance of 600 ohms @ 24 VDC (consult factory for other resistance values).

SAMPLE GAS CHARACTERISTICS

Sample Flow Rate: 1.0 to 2.0 standard cubic feet per hour (SCFH).
0.5 to 1.0 liters/ minute (LPM).

Sample Gas Temperature: 40° to 104° F (5° to 40° C)

Sample Gas Pressure Limits: 0.1 to 1.5 psig (0.007 to 0.1 kg/cm²).

Entrained Solids: <3 mg/ft³: no in-line filter required
>3 mg/ft³: in-line filter is required

Hydrocarbon Mist: <0.7 mg/ft³: no in-line filter required
>0.7 mg/ft³: in-line filter is required

CONSTRUCTION

Enclosure: Polycarbonate, rated NEMA 4X (IP66) without optional equipment.

Dimensions: 5.5 in (139.9 mm) height.
8.8 in (223.5 mm) width.
3.4 in (86.4 mm) deep.
Note: All dimensions are without optional equipment

Gas Connections: 1/4" stainless steel compression fittings.

¹ Stated at constant temperature and pressure

APPLICATIONS

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|------------------------|------------------------------|
| Heat Treating | Vessel Blanketing |
| Air Separation | Petrochemical Processing |
| Glove Boxes | Pharmaceutical Manufacturing |
| Inert Gas Generators | Anaerobic Chambers |
| Chemical Manufacturing | Food Processing |
| Process Dryers | Beverage Processing |



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